

Metal and Ligand Effect on the Structural Diversity of Divalent Coordination Polymers with Mixed Ligands: Evaluation for Photodegradation

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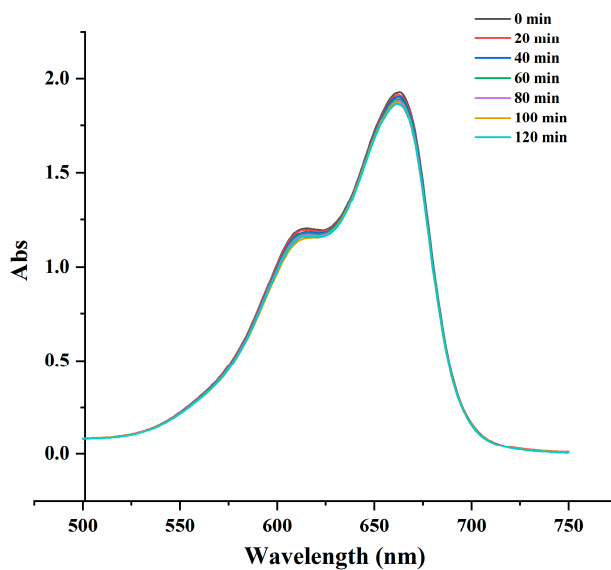


Figure S1. UV-vis spectra of the tube 1.

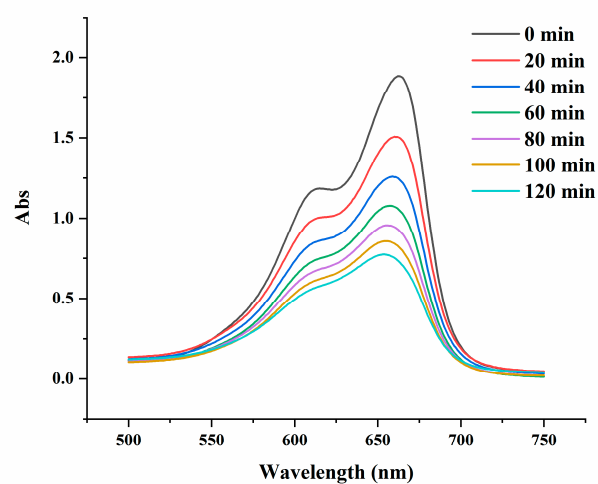


Figure S2. UV-vis spectra of the tube 2.

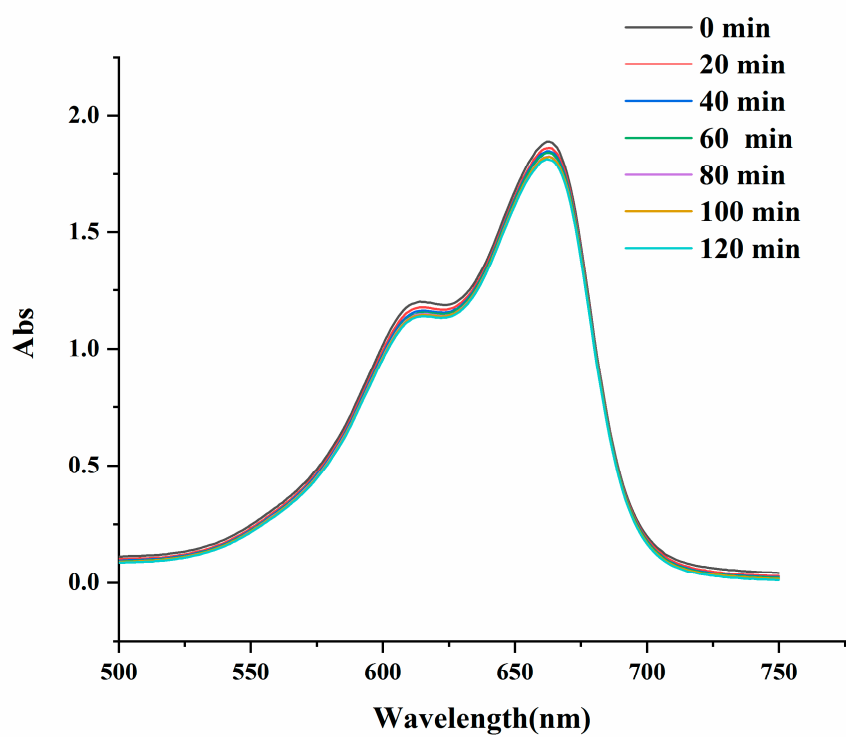


Figure S3. UV-vis spectra of tube 3 for complex 1.

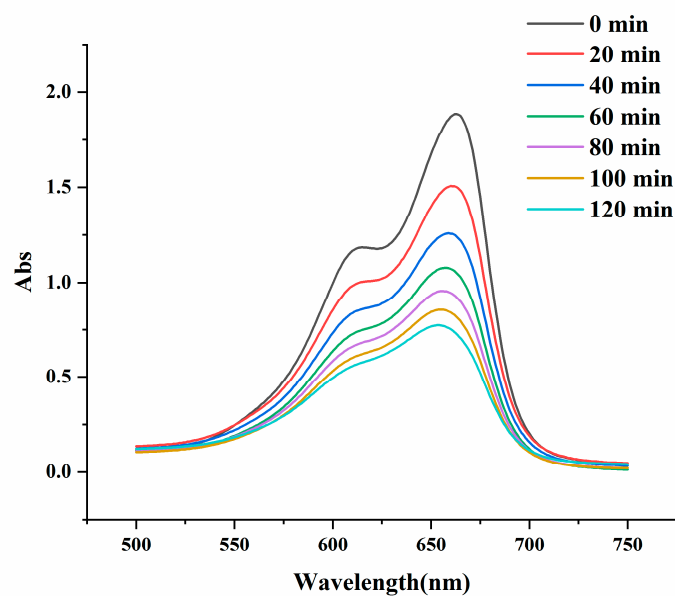


Figure S4. UV-vis spectra of tube 4 for complex 1.

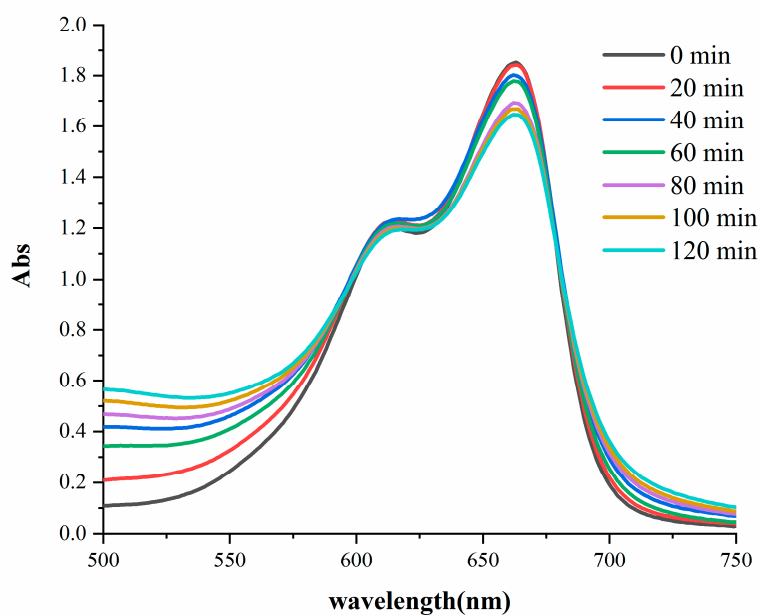


Figure S5. The UV-vis spectra of tube 3 for complex 2.

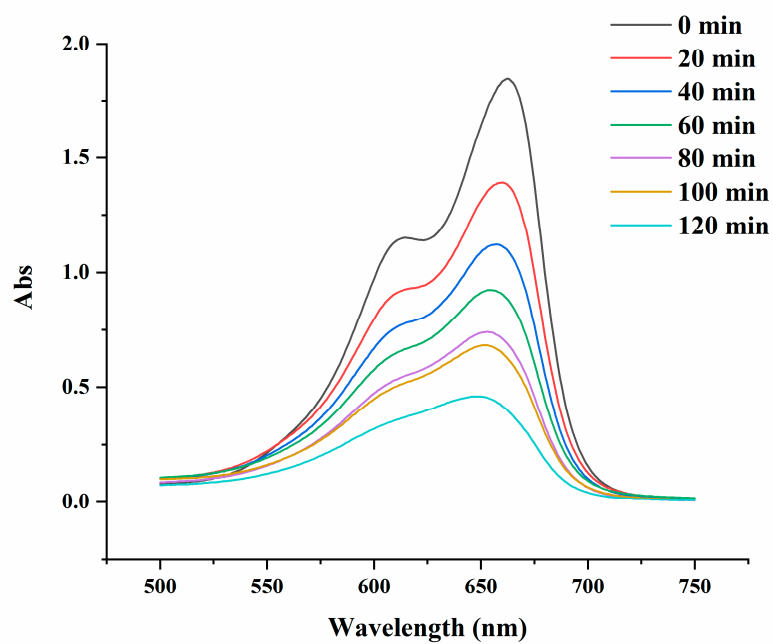


Figure S6. UV-vis spectra of tube 4 for complex 2.

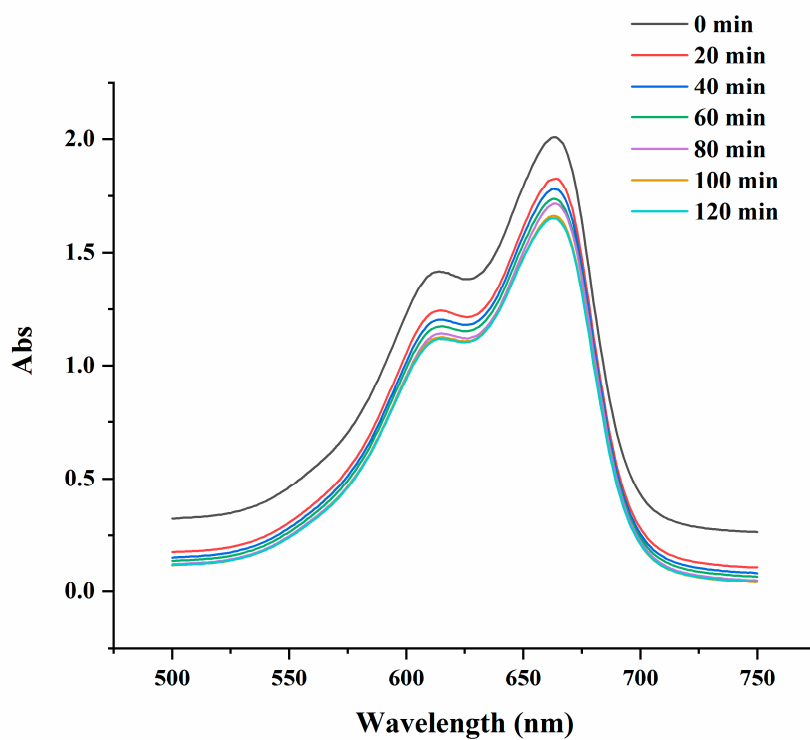


Figure S7. UV-vis spectra of tube 3 for complex 3.

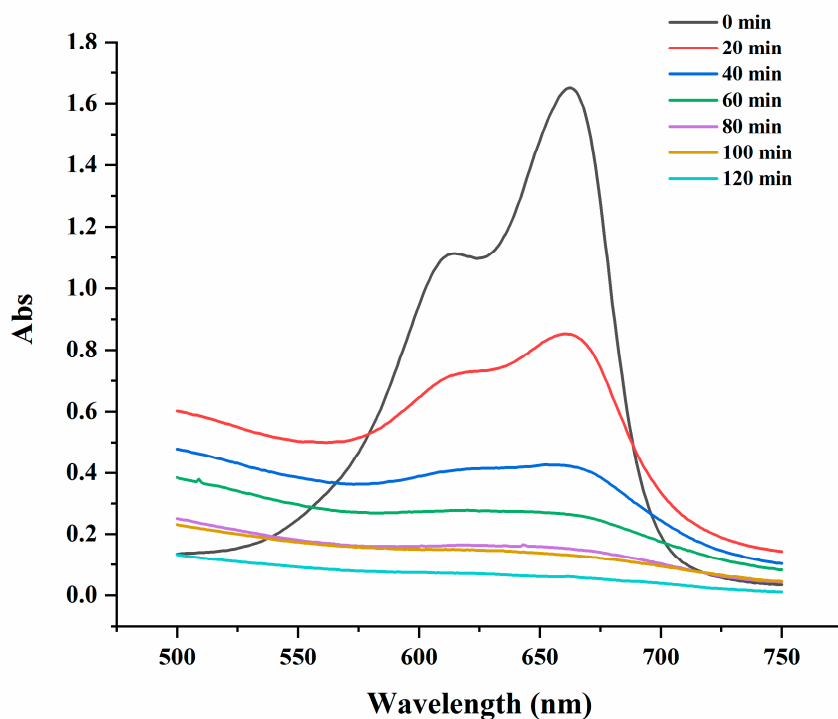


Figure S8. UV-vis spectra of tube 3 for complex **3**.

Table S1. Degradation efficiency (DE) with the mean values and standard deviations for MB solution under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard deviation
0	100.00	100.00	100.00	100.00	0
20	99.09	99.17	99.32	99.20	0.12
40	98.88	98.76	98.91	98.85	0.08
60	98.13	98.08	98.33	98.18	0.13
80	97.44	97.56	97.71	97.57	0.13
100	96.91	96.94	97.55	97.13	0.36
120	96.86	96.58	97.45	96.96	0.44
DE	3.14	3.42	2.55	3.04	

Table S2. Degradation efficiency (DE) with the mean values and standard deviations for MB solution + H₂O₂ under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard deviation
0	100.00	100.00	100.00	100.00	0
20	82.80	83.94	87.24	84.66	2.31
40	70.34	73.39	76.44	73.39	3.05
60	60.91	64.79	67.30	64.34	3.22
80	53.66	59.00	63.03	58.56	4.70
100	47.14	52.81	56.20	52.05	4.58
120	41.49	47.19	50.92	46.53	4.75
DE	58.51	52.81	49.08	53.47	

Table S3. Degradation efficiency (DE) with the mean values and standard deviations for complex 1 under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard deviation
0	100.00	100.00	100.00	100.00	0.00
20	97.65	98.09	97.03	97.59	0.53
40	96.08	96.96	95.85	96.30	0.58
60	95.20	96.91	95.65	95.92	0.89
80	94.36	95.87	94.26	94.83	0.90
100	93.63	95.82	94.21	94.55	1.14
120	93.11	95.36	93.70	94.05	1.17

DE	6.89	4.64	6.30	5.95	
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Table S4. Degradation efficiency (DE) with the mean values and standard deviations for MB solution + complex **1** + H₂O₂ under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard deviation
0	100.00	100.00	100.00	100.00	0
20	79.21	79.64	80.64	79.83	0.73
40	67.19	65.85	66.11	66.38	0.70
60	57.63	55.73	57.78	57.05	1.14
80	49.74	48.94	49.97	49.55	0.54
100	44.10	43.37	44.40	43.96	0.52
120	38.35	38.60	38.99	38.65	0.32
DE	61.65	61.40	61.01	61.35	

Table S5. Degradation efficiency (DE) with the mean values and standard deviations for MB solution + complex **2** under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard deviation
0	100.00	100.00	100.00	100.00	0.00
20	97.72	98.14	99.72	98.52	1.05
40	95.49	97.34	96.10	96.31	0.94
60	94.27	96.59	95.14	95.33	1.17
80	89.71	96.54	92.71	92.99	3.42
100	88.49	95.84	88.64	90.99	4.20

120	87.27	93.61	87.85	89.58	3.50
DE	12.73	6.39	12.15	10.42	

Table S6. Degradation efficiency (DE) with the mean values and standard deviations for MB solution + complex **2** + H₂O₂ under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard deviation
0	100.00	100.00	100.00	100.00	0.00
20	72.72	74.59	75.15	74.15	1.27
40	56.63	59.05	61.34	59.01	2.36
60	45.05	47.51	50.46	47.67	2.71
80	35.33	37.00	41.31	37.88	3.09
100	33.64	27.68	29.07	30.13	3.12
120	20.27	21.34	25.61	22.41	2.82
DE	79.73	78.66	74.39	77.59	

Table S7. Degradation efficiency (DE) with the mean values and standard deviations for MB solution + complex **3** under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard Deviation
0	100.00	100.00	100.00	100.00	0.00
20	99.50	90.84	90.04	93.46	5.24
40	89.20	88.60	87.68	88.49	0.76
60	87.94	86.46	86.31	86.90	0.90
80	86.23	84.47	85.97	85.56	0.95

100	85.08	82.73	84.54	84.12	1.23
120	84.17	82.18	84.35	83.57	1.20
DE	15.83	17.82	15.65	16.43	

Table S8. Degradation efficiency (DE) with the mean values and standard deviations for MB solution + complex **3** + H₂O₂ under catalytic experiment.

Time interval	1 st	2 nd	3 rd	Mean	Standard Deviation
0	100.00	100.00	100.00	100.00	0.00
20	55.94	51.61	52.26	53.27	2.34
40	30.78	25.56	26.95	27.77	2.70
60	18.18	15.99	15.83	16.67	1.31
80	11.93	9.21	10.30	10.48	1.37
100	9.91	7.87	6.36	8.05	1.78
120	6.24	3.69	4.90	4.94	1.27
DE	93.76	96.31	95.10	95.06	

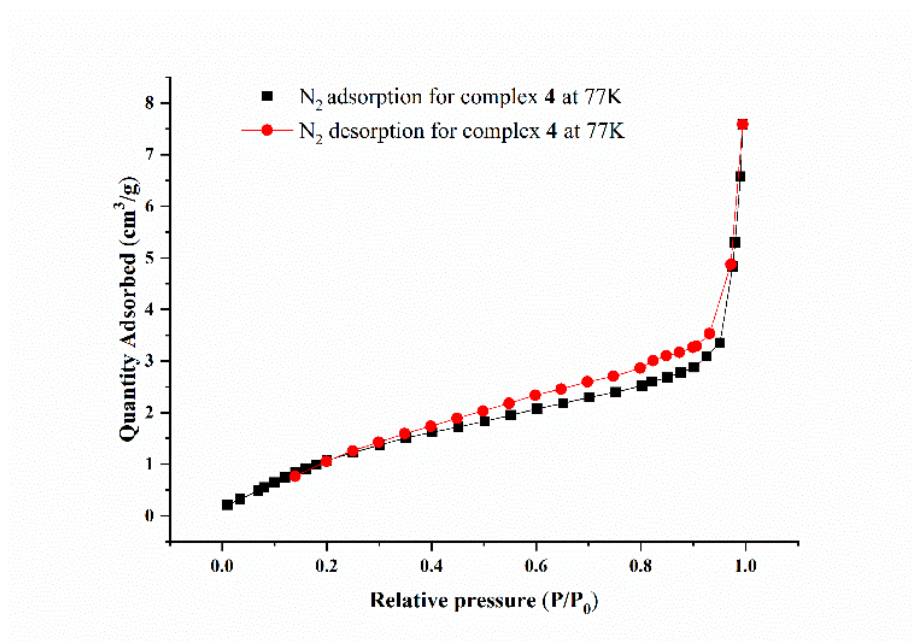


Figure S9. N₂ sorption isotherm for complex 1.

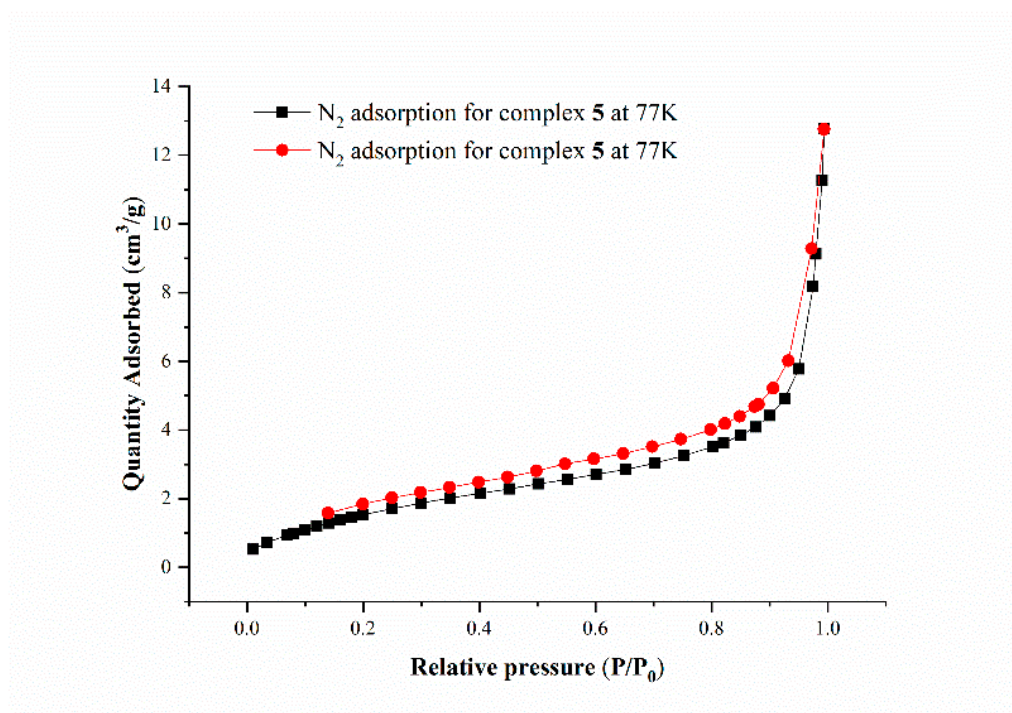


Figure S10. N₂ sorption isotherm for complex 2.

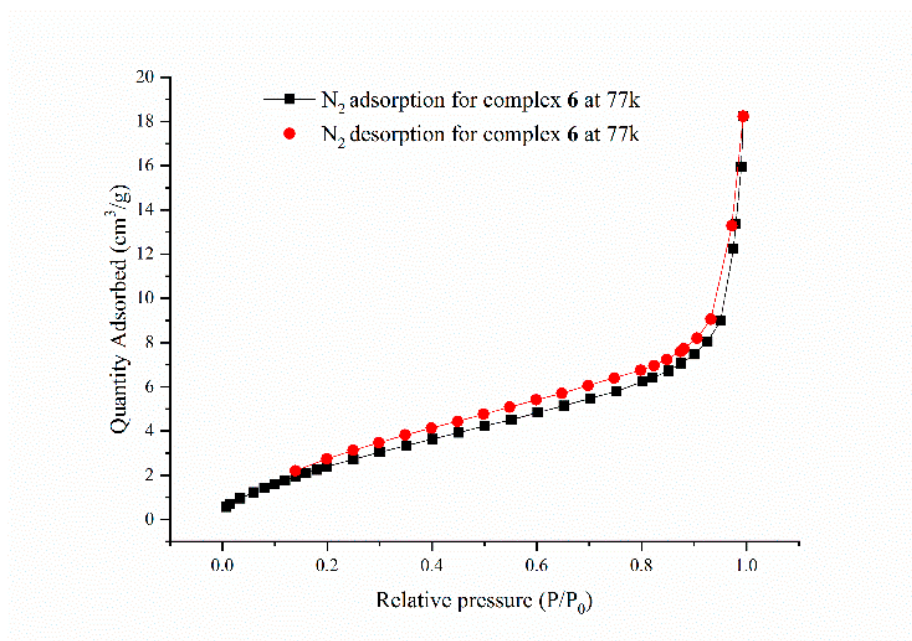


Figure S11. N_2 sorption isotherm for complex 3.

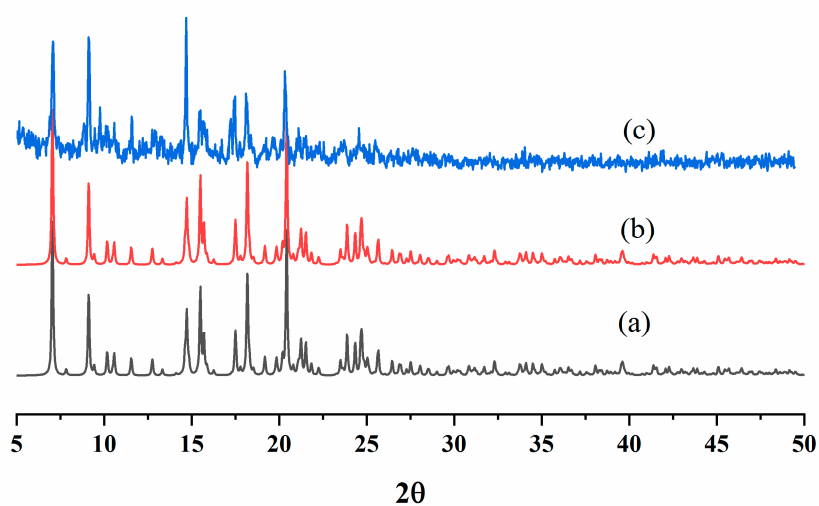


Figure S12. The PXRD pattern of 1 (a) simulated from single-crystal X-ray data, (b) as synthesized and (c) after photodegradation experiment.

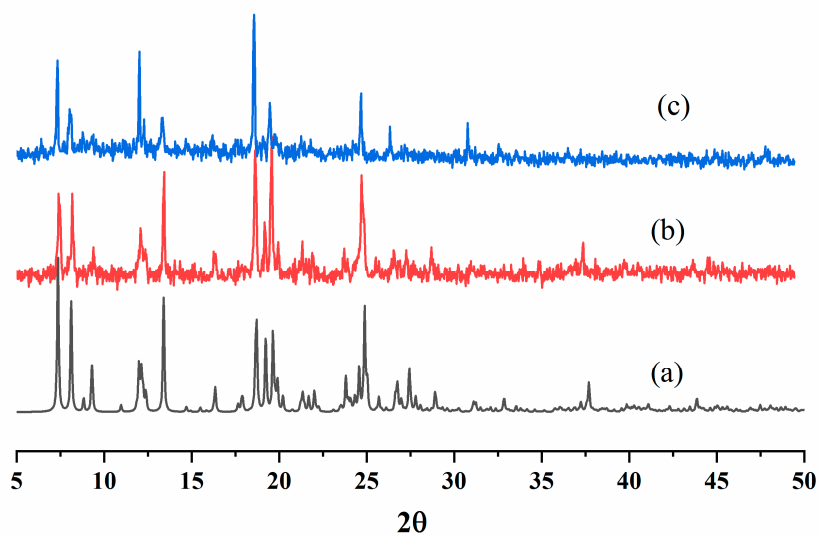


Figure S13. The PXRD pattern of **2** (a) simulated from single-crystal X-ray data, (b) as synthesized and (c) after photodegradation experiment.

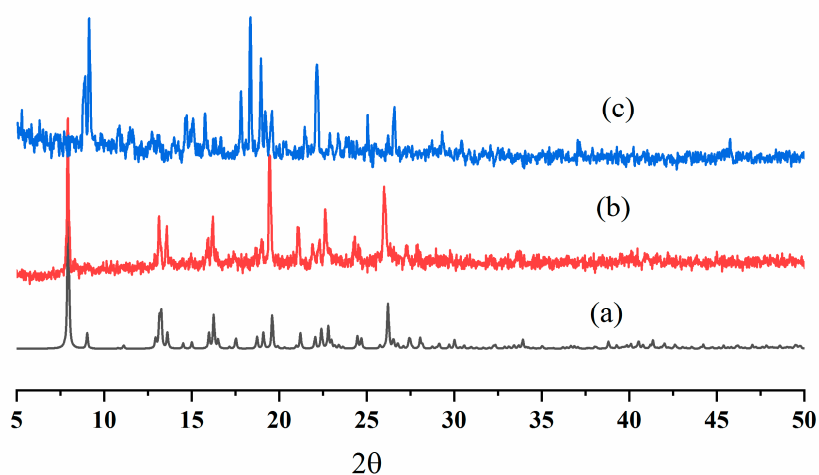


Figure S14. The PXRD pattern of **3** (a) simulated from single-crystal X-ray data, (b) as synthesized and (c) after photodegradation experiment.

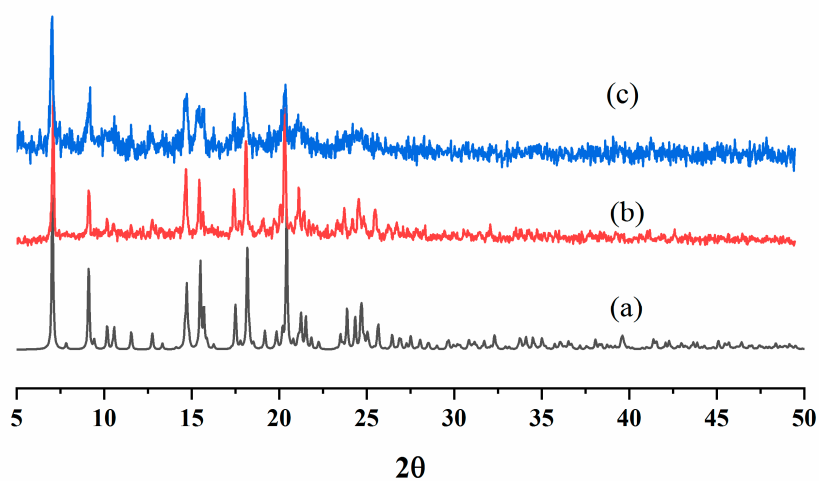


Figure S15. The PXRD pattern of **1** (a) simulated from single-crystal X-ray data, (b) as synthesized and (c) after nitrogen adoption experiment.

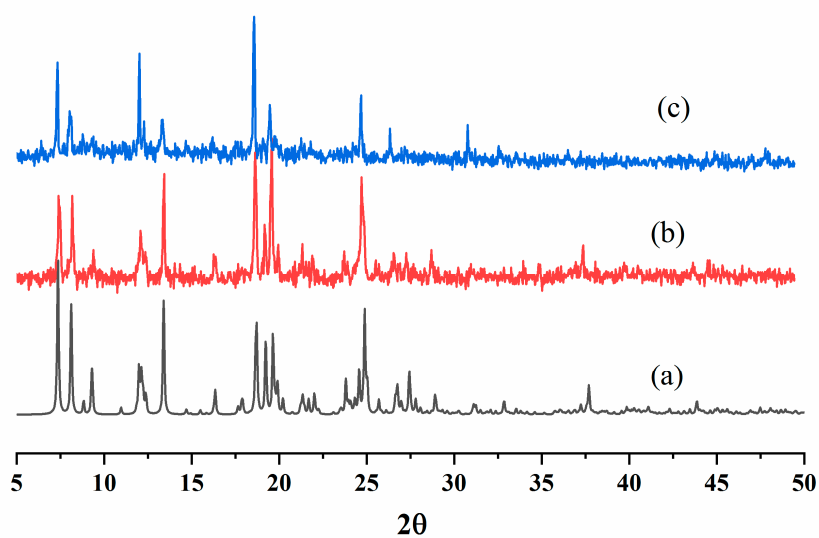


Figure S16. The PXRD pattern of **2** (a) simulated from single-crystal X-

ray data, (b) as synthesized and (c) after nitrogen adoption experiment.

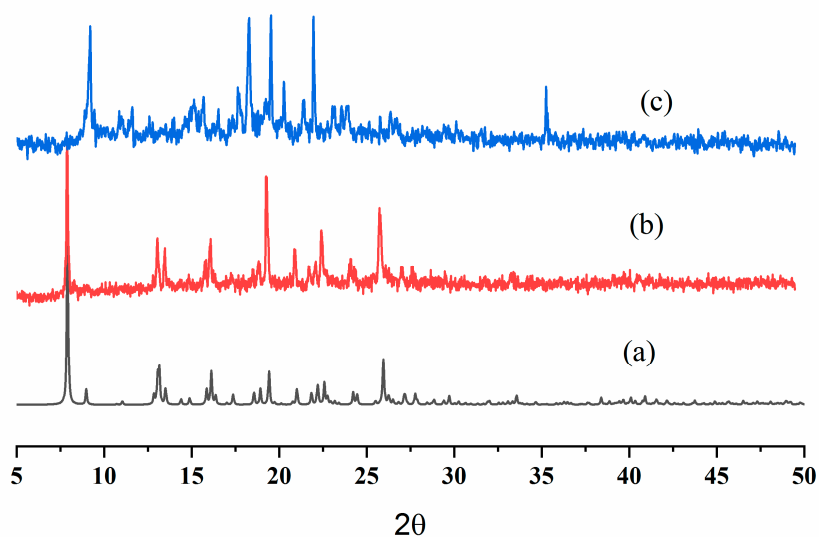


Figure S17. The PXRD pattern of **3** (a) simulated from single-crystal X-ray data, (b) as synthesized and (c) after nitrogen adoption experiment.

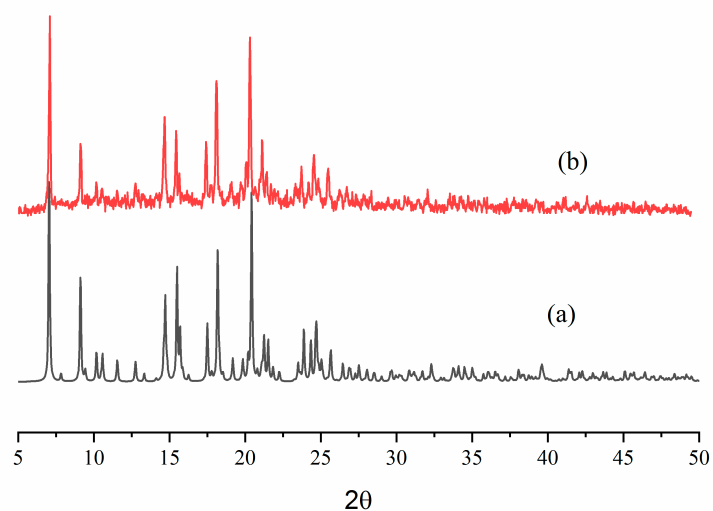


Figure S18. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **1**.

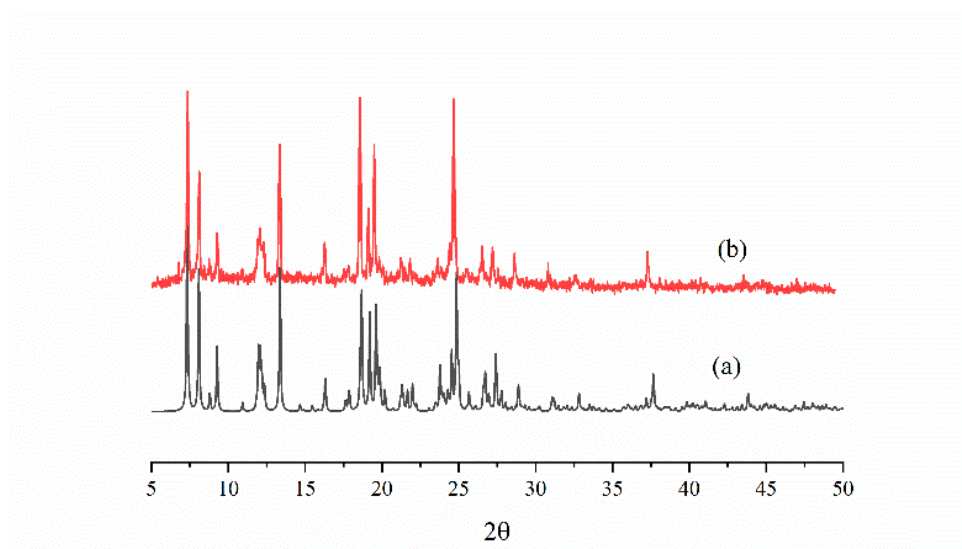


Figure S19. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **2**.

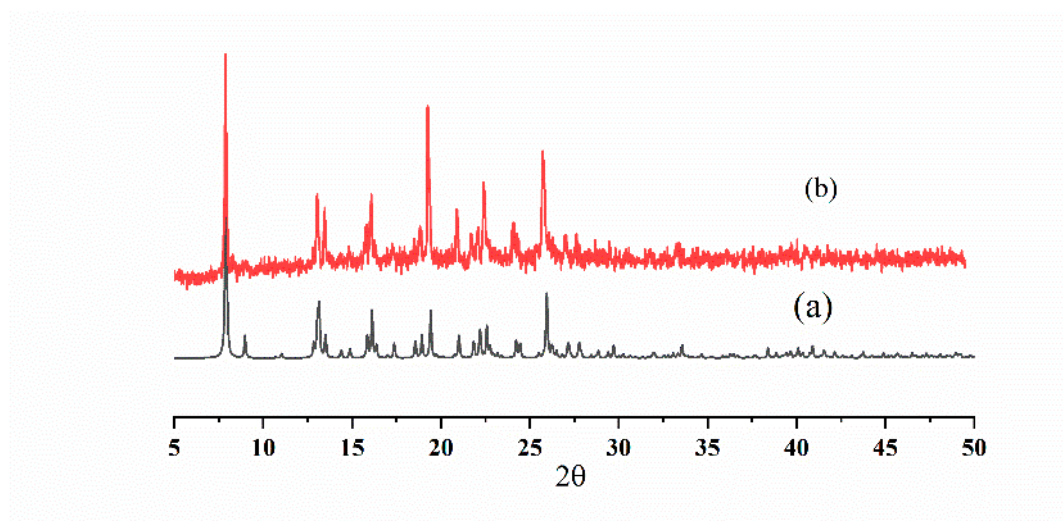


Figure S20. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **3**.

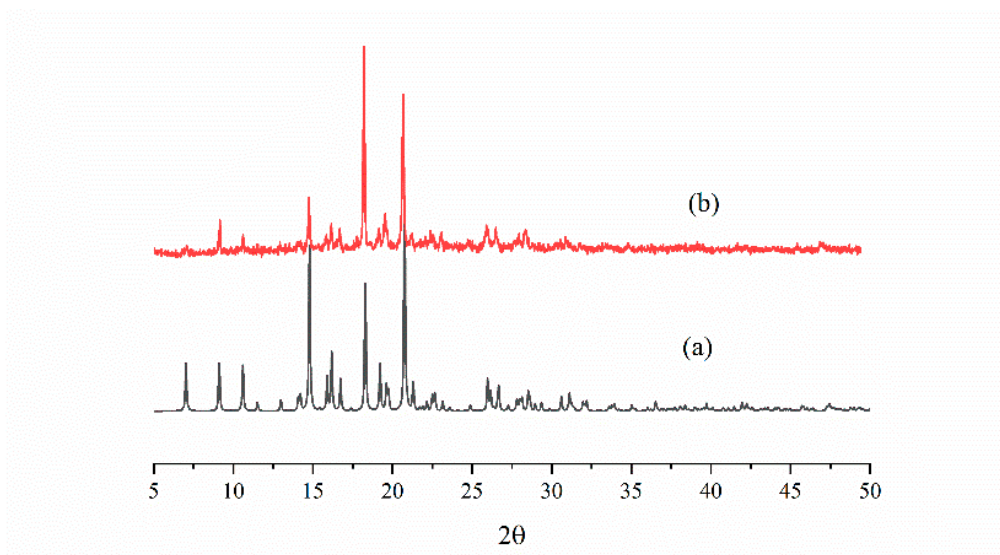


Figure S21. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **4**.

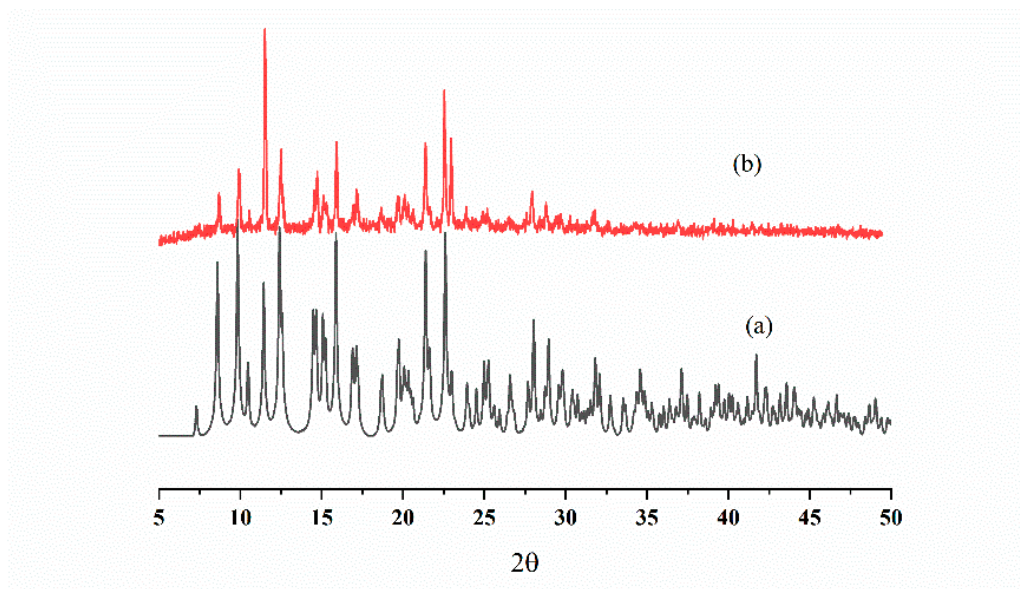


Figure S22. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **5**.

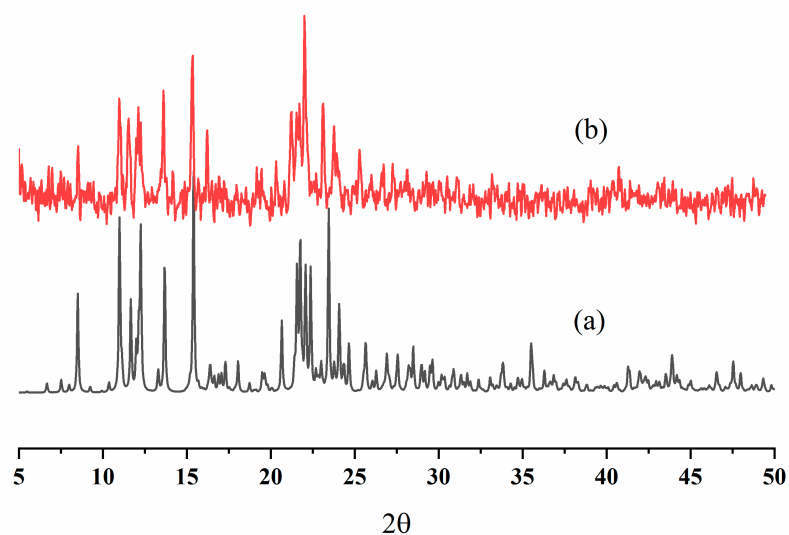


Figure S23. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **6**.

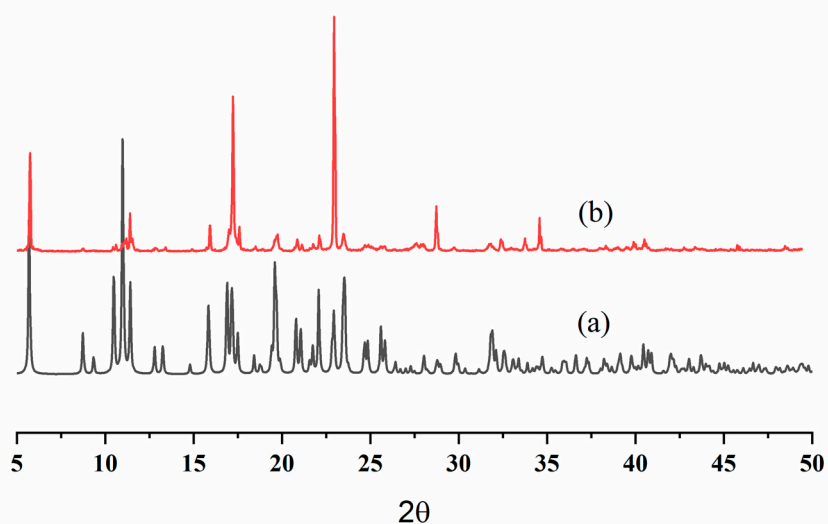


Figure S24. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **7**.

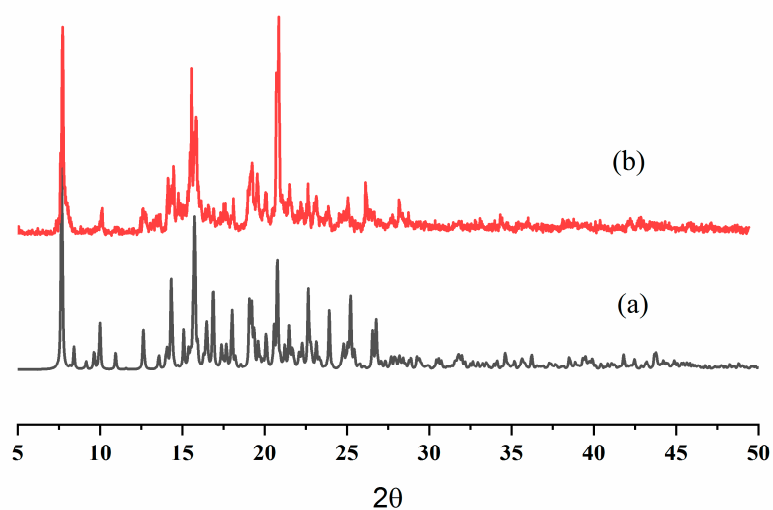
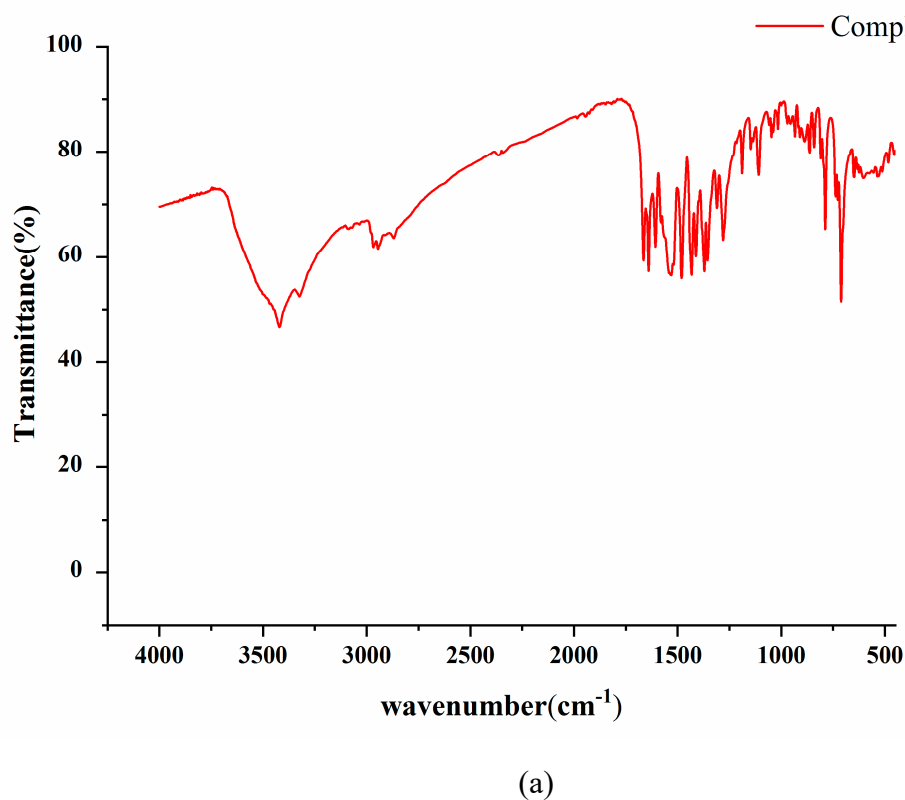
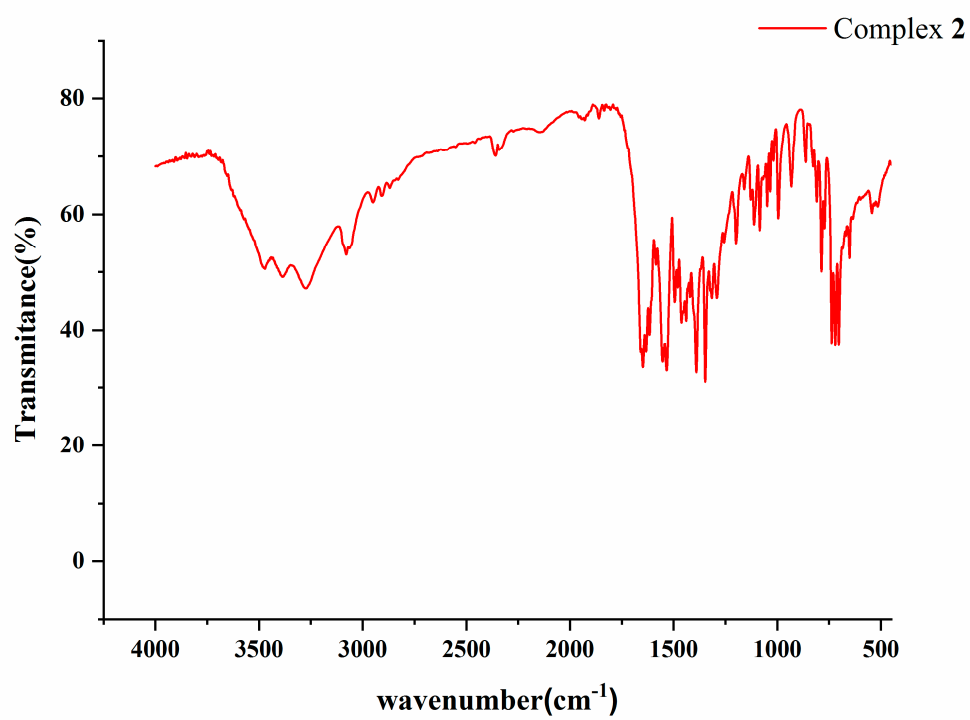
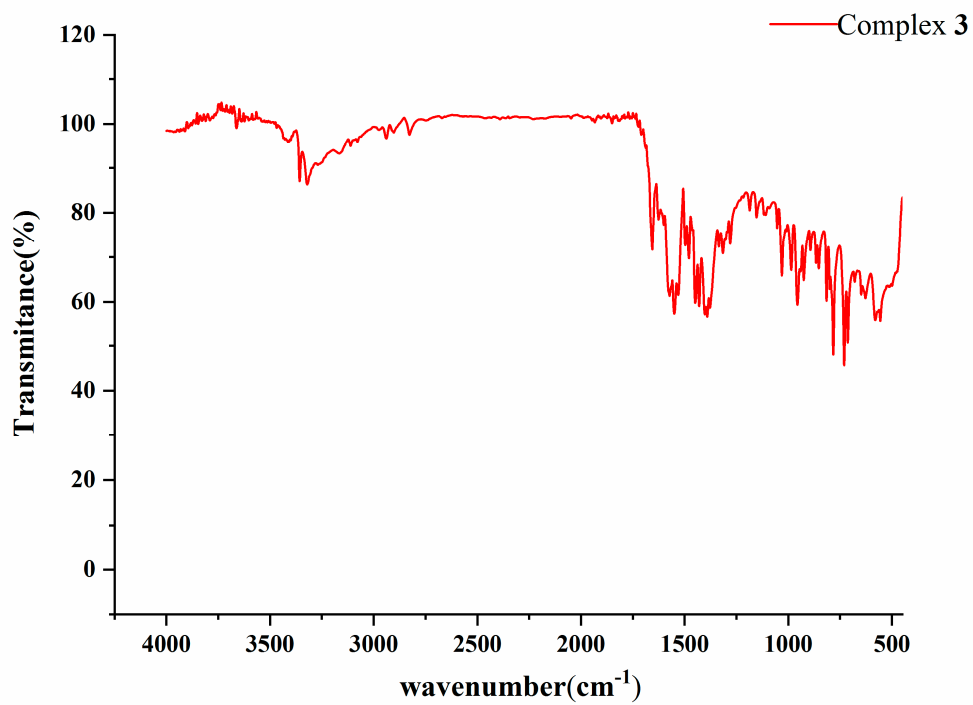


Figure S25. The PXRD pattern of (a) simulated from single-crystal x-ray data and (b) bulk materials as synthesized for complex **8**.

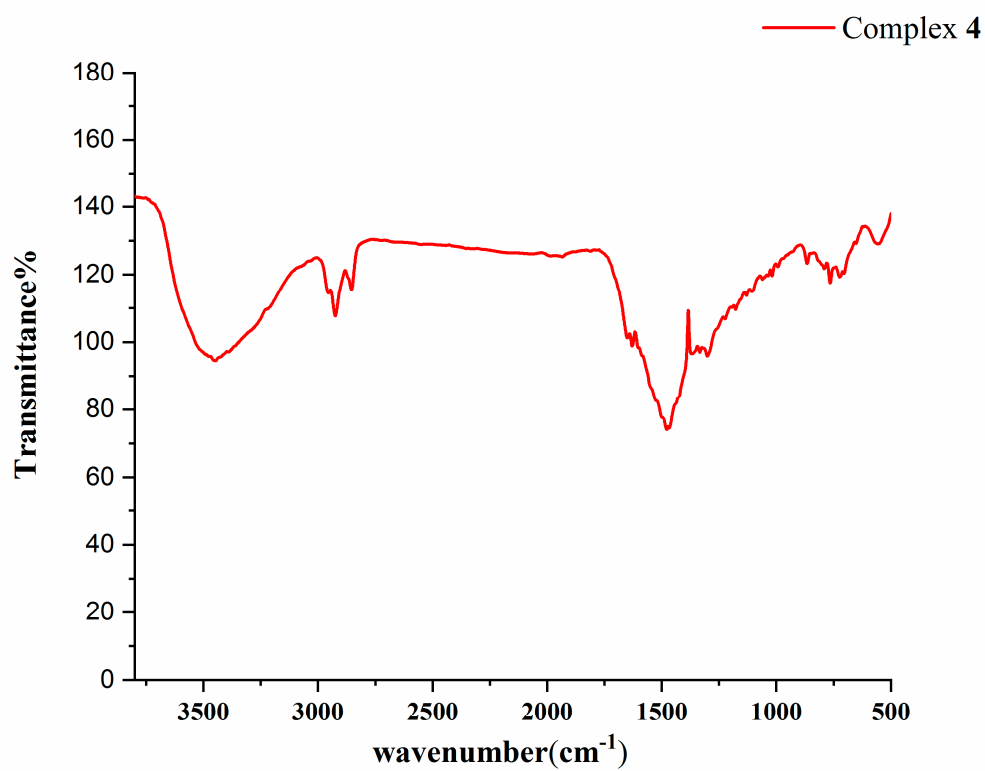




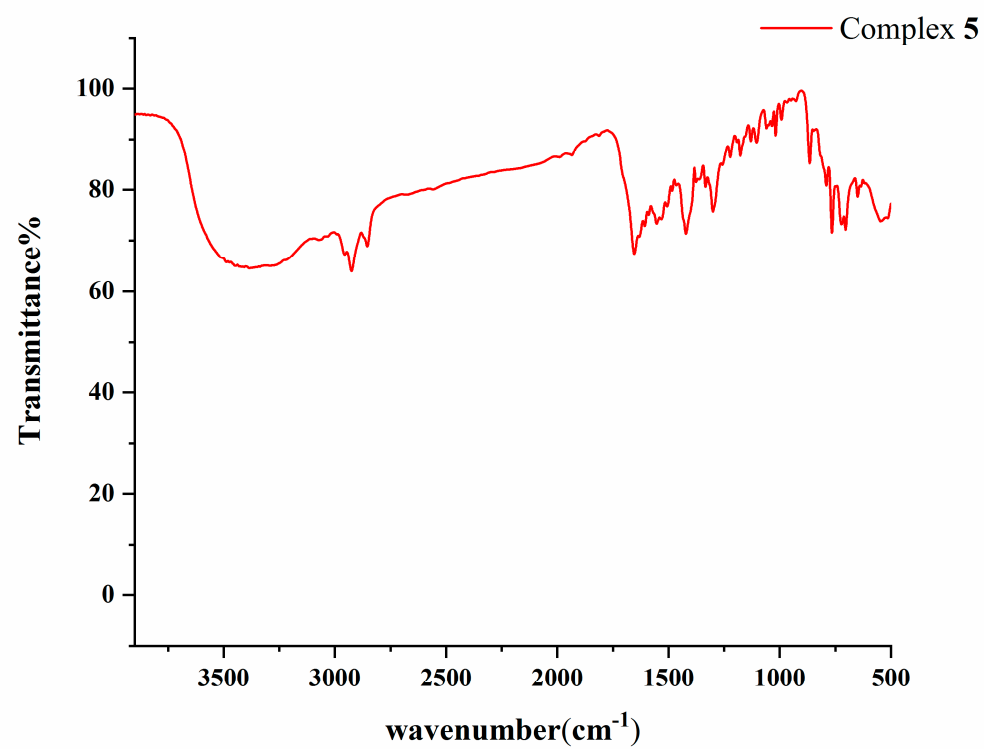
(b)



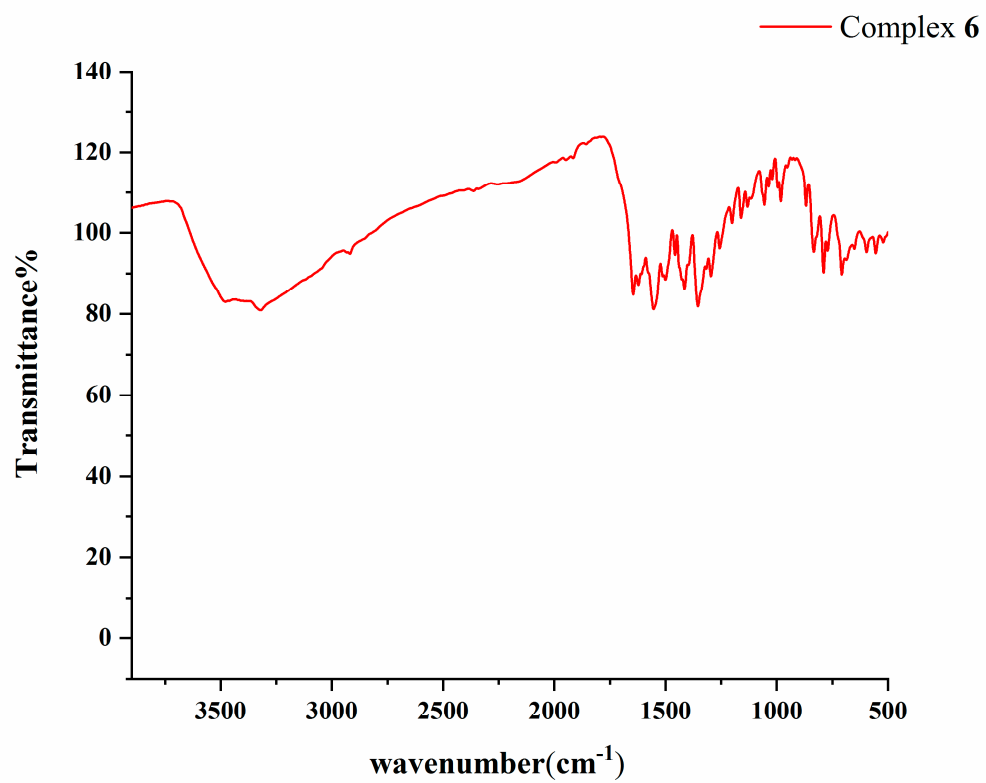
(c)



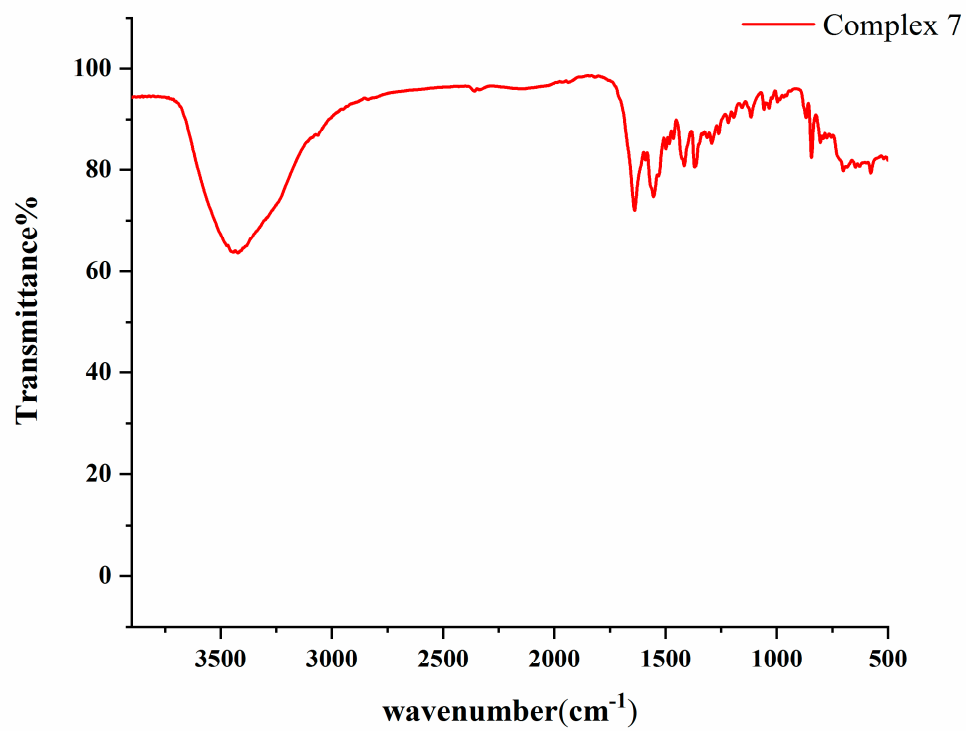
(d)



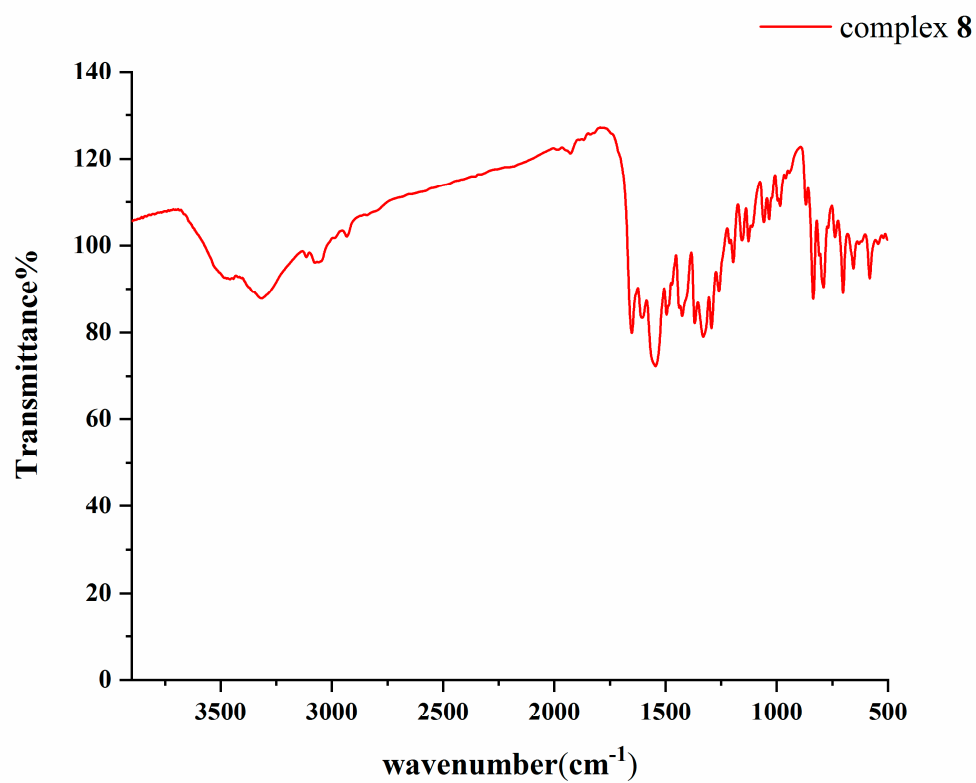
(e)



(f)



(g)



(h)

Figure S26. FTIR spectra of complex (a) 1, (b) 2, (c) 3, (d) 4, (e) 5, (f) 6, (g) 7 and (h) 8.

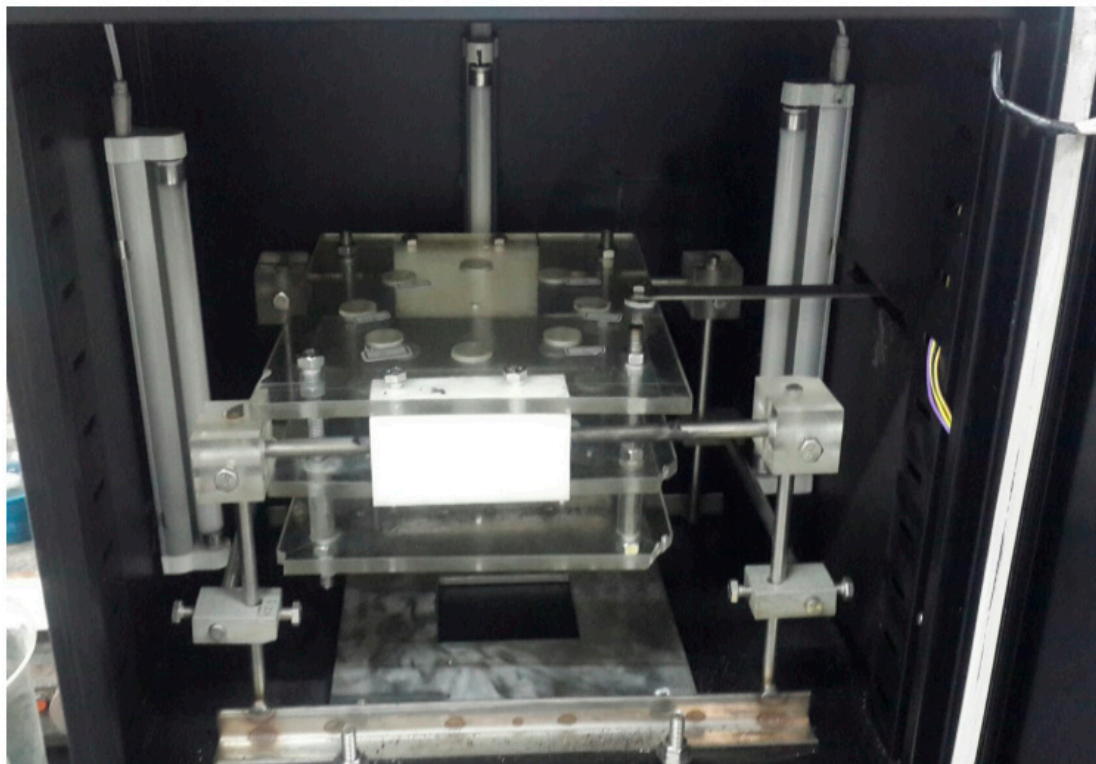


Figure S27. A photograph showing the internal side of a black photodegradation box.